REMARKS

Claims 1-15 and 17 are pending in this application. Claims 1-6 and 9-14 stand withdrawn. By this Amendment, claim 7 is amended to incorporate the subject matter of claim 16. No new matter is added.

Claims 7 and 17 are rejected under 35 U.S.C. §102(b) over WO 2004/021486 to Scott et al. ("Scott"). Claim 8 is rejected under 35 U.S.C. §103(a) over Scott in view of U.S. Patent No. 6,238,534 to Mao et al. ("Mao"). Claim 15 is rejected under 35 U.S.C. §103(a) over Scott in view of Mao and further in view of U.S. Patent Publication No. 2002/0127474 to Fleischer et al. ("Fleischer"). Claim 16 is rejected under 35 U.S.C. §103(a) over Scott in view of Mao and Fleischer and further in view of JP 2004 134132 to Uchida et al. ("Uchida"). These rejections are respectfully traversed.

Independent claim 7, as amended, now incorporates the subject matter of claim 16. Thus, the rejection of claim 16 will now be addressed in the context of claim 7.

Claim 7, as amended, recites that the solid polymer electrolyte membrane is an anion exchange membrane, the cathode catalyst layer contains silver as a catalyst, and the cathode catalyst layer contains an anion exchange resin as a binder. The Office Action asserts that the combination of Scott, Mao, Fleischer and Uchida discloses these features. But it would not have been obvious, to one of ordinary skill in the art, to combine the features of these references, as suggested by the Office Action. Specifically, the applied references fail to disclose the criticality of this combination of features.

Paragraphs [0006]-[0008] and [0020] of Applicants' specification explains the technical advantage provided by combining silver as a catalyst and an anion exchange membrane. In direct alcohol fuel cells it is possible for the alcohol to penetrate the membrane between the anode and cathode. See [0006] of specification. The specification explains that when a metal such as platinum, or the like, which are highly active in oxygen reduction are

used on the cathode, the alcohol is immediately oxidized on the platinum. See [0006] of specification. The resulting by products lower the efficiency of the fuel cell.

The specification explains that using silver in the cathode can alleviate this problem, because silver will not oxidize the crossover alcohol. See [0020] of specification. Yet the specification explains that previously silver was rarely used because silver will corrode at the contact interface. See [0020] of specification. It was Applicants' discovery that revealed that when an anion exchange membrane is used in combination with the silver, the corrosion of the silver is significantly reduced. See [0020] of specification.

Furthermore, Applicants' specification explains the efficiency of the fuel cell is further improved when the cathode catalyst layer contains an anion exchange resin as a binder. Specifically, at the surface of the silver O_2 becomes OH. The OH then emits an electron, in order to transmit through the anion exchange membrane, thus the OH becomes an OH^- ion. But the electromotive force produced will decline if there is not sufficient ion conductivity to the anion exchange membrane.

The addition of an anion exchange resin allows an ion conduction path to be formed from the silver (and its substrate) to the anion exchange membrane. None of the applied references disclose this relationship or advantage. As such, the applied references fail to identify the criticality of this combination of features.

The Office Action asserts that it would be obvious to combine the features regardless. Yet Scott explains that the choice of catalyst and/or membrane in a fuel cell is dependent on the type of fuel used, and the expected interactions between the components. See Scott, page 17. For example, Scott discloses that the electrocatalyst chosen depends of the fuel used. Thus, while Scott discloses a large list of potential electrocatalysts at page 17, lines 9-13, Scott significantly culls this list depending on the chosen fuel. In fact, Scott does not list silver as a preferable catalyst when methanol or ethanol (two alcohols) is chosen as the fuel.

Thus, it is impermissible hindsight to assert that the applied references suggest the specific combination of features disclosed in claim 7, absent any identification of the criticality of the combination, or a disclosure of how these features would interact. Rather, one of ordinary skill in the art would not have thought it obvious to combine the specifically identify set of features into a fuel cell. In fact, due to the corrosive nature of the silver, those of ordinary skill would likely have thought this combination to be unusable. As such, withdrawal of the rejection of claim 7, and claims 8, 16 and 17 depending therefrom, is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Moshe K. Wilensky
Registration No. 56,263

JAO:MKW/jfb

Date: May 26, 2009

OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461